MICROWAVE PROCESSING OF HIGH TEMPERATURE MATERIALS. Many demonstrations of high temperature materials processing using microwaves have been performed. However, in order to carry these impressive demonstrations to the commercial market place we must have a clear theoretical understanding of the microwave/materials interaction and improved methods for energy efficient processing. Researchers at the Jet Propulsion Laboratory have developed theoretical models of the microwave absorption and resultant transient and steady state temperature profiles *within* the processing material. These models are well suited for investigating those processes where an inverted internal temperature gradient (i.e., hotter center than surface) is required such as in chemical vapor infiltration (CVI) and nitridation processes. An advanced single mode microwave processing facility has also been constructed that can optimize and control the power absorbed by the sample. A computer continuously monitors the process parameters. A new decay method is being developed for continuous measurement of the complex dielectric constant during processing. The facility is also being used for ceramic/ceramic and ceramic/metal joining studies. For more information, contact Martin Barmatz; phone (818) 354-3088, fax (818) 393-5039.

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